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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
BERNSHTEYN, MICHAEL	

ART UNIT	PAPER NUMBER
1713	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/523,086	HERFERT ET AL.	
	Examiner	Art Unit	
	Michael Bernshteyn	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-30 is/are pending in the application.

4a) Of the above claim(s) 20-30 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-19 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) 1-30 are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 08/22/2005.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's election with traverse of Group1, claims 1 through 19 inclusive in the reply filed on November 25, 2005 is acknowledged. The traversal is on the ground(s) that according to PCT Rule, claims of different categories with common special technical features do not lack novelty. This is not found persuasive because the claimed common special technical feature in all claims is adding clay to superabsorbent polymers during the surface-crosslinking step, and this common special technical feature lacks of novelty.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claim 1-5 and 7-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Sun et al. (U.S. Patent 6,124,391).

Sun discloses a particulate material composition of superabsorbent polymer particles, wherein less than about 60% by weight of the superabsorbent polymer particles will pass through a U.S. Standard 50 mesh sieve. The composition has anti-caking properties and also reduced dusting. The composition can be produced by **mixing the superabsorbent polymer particles with an inorganic powder, such as clay** (abstract).

Sun discloses superabsorbent polymers, namely polymers that absorb over 20 times their weight in water, which superabsorbent polymers have unique anti-caking characteristics from admixing with a fine inorganic powder (col. 1, lines 7-11), and also a method for providing anti-caking characteristics to SAP particles. The method comprises (A) providing SAP particles of such size that less than about 60% of the polymer particles, by weight, will pass through a U.S. Standard 50 mesh sieve with 300 micrometer openings, (B) mixing an inorganic powder with the polymer particles in an amount of between about 0.2% and about 10% by weight of the polymer particles, to create a particulate material composition, and (C) achieving anti-caking characteristics in that more than about 90% of the composition particles, by weight, will pass through a U.S. Standard 12 mesh sieve with 1700 micrometer openings after at least about 3 hours at about 36^0C and about 77% RH (col. 3, lines 46-59). A mixture of SAP particles and inorganic powder is referred to as a "particulate material composition" (col. 4, lines 47-48).

With regard to the limitations of instant claims 1 and 2, Sun discloses that the SAP may be obtained by polymerizing at least about 25%, more preferably **about 55 to about 99.9% by weight of monomers** having olefinically-unsaturated carboxylic and/or sulfonic acid groups. Such acid groups include, but are not limited to, **acrylic acids, methacrylic acids**, 2-acrylamido-2-methylpropane sulfonic acid, and mixtures thereof. The acid groups are present as salts, such as sodium, potassium, or ammonium salts.

Suitable network X-linking agents useful in making the SAPs are those, which have at least two ethylenically unsaturated double bonds. Suitable kinds of network X-

linking agents include, but are not limited to, acrylate and methacrylate of polyols (such as butanediol diacrylate, hexanediol dimethacrylate, polyglycol diacrylate, trimethylolpropane triacrylate, allyloxy polyethylene glycol methacrylate, and ethoxylated trimethylolpropane triacrylate, etc. (col. 5, lines 32-53). Furthermore, depending on the desired end use, the SAP may have a water-soluble polymeric component. The content may range from **above 0 up to about 30% by weight** of a component that includes, but is not limited to, partially or complete saponified polyvinyl alcohol, polyvinyl pyrrolidone, starch, starch derivatives, polyglycols, **polyacrylic acids**, and combinations thereof (col. 5, lines 55-61).

In connection with the particle shape of the SAP, there are no specific limitations. The SAP may be the dried resultant obtained either by inverse or suspension polymerization, or by solvent or solution polymerization. A typical particle size distribution ranges between **about 20 and about 2000 micrometers**, preferably between about 40 and about 890 micrometers, and more preferably between about 90 and about 850 micrometers (col. 6, lines 8-11). In order to coat the particulate SAP with a surface X-linking agent, the polymer may be mixed with an aqueous-alcoholic solution of the alkylene carbonate surface X-linking agent. It is also possible to apply the alkylene carbonate surface X-linking agent from a powder mixture, for example, with an inorganic carrier material, such as SiO_2 (col. 6, lines 28-30 and 48-50).

The inorganic powder is preferably mixed with the SAP particles in an amount sufficient to achieve anti-caking characteristics. Typically, this is an amount of between **about 0.2% to about 10%**, more preferably about 0.5% to about 7%, and even more

preferably about 0.9% to about 5.5% (i.e., between about 0.9 to about 5.5 parts of inorganic powder per 100 parts) by weight of the SAP particles. The inorganic powder may be mixed with the particles of SAP **in a substantially dry state**, or with the addition of a liquid such as water, in amounts typically of up to about 10 parts by weight of the liquid to 100 parts by weight of the SAP particles (col. 7, lines 24-36). The inorganic powder and the particles of SAP can be **intermixed** in any suitable manner. Suitable manners include, but are not limited to, physical intermixing employing the mixers that are employed for the optional surface X-linking agent. Thus, if surface X-linking is going to be effected, (1) the inorganic powder may be mixed with the precursor SAP particles **prior to mixing and heating with the surface X-linking agent**, or (2) the precursor SAP particles may be **mixed and heated with the surface X-linking agent** followed by mixing with the inorganic powder (col. 7, lines 37-47).

In Example 1 the particulate precursor SAP was screened to 95 to 850 micrometers, and then, 200 grams were mixed with 2 grams of powdery **kaolin** (NeoGen 2000) in a Bausch bread kneader for 5 minutes at speed 3. An aqueous solution containing 20% by weight of ethylene carbonate (surface X-linking agent) was then added by spraying (col. 11, lines 58-63). In Example 5 the mixture was then blended for 2 hours, transferred to an oven and heated at 190^0C for 25 minutes to complete the surface X-linking treatment. The final particulate material composition (of AP-88 and kaolin) was sieved to a PSD ranging from about **150 to 850 micrometers** (col. 12, lines 34-38).

The reference is analogous art because it is from the same field of endeavor concerning new particulate material compositions (of the SAP particles and the inorganic powder), which may be employed for any traditional use for which SAPs are employed. For instance, such uses include, but are not limited to, use in an absorbent article such as a sanitary article (i.e., diapers, incontinence garments, etc.) (US'391, col. 7, lines 49-53).

Regarding the superabsorbent paticles limitations in view of substantially identical superabsorbent polymers, monomers, surface crosslinking agent, clay, inorganic network builder, process producing such products (compare US'391, col. 5-7, Examples 1-8, and the specification, pages 9-36, Examples 1-5) being used by both Sun and the applicant, it is the examiner position to believe that the product, i.e. superabsorbent paticles of Sun is substantially the same as the superabsorbent paticles recited in claims 1 and 2, even though obtained by a different process, consult ***In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).***

Since the USPTO does not have proper equipment to do the analytical test, the burden is now shifted to the applicant to prove otherwise.

It is axiomatic that one who performs the steps of a process must necessarily produce all of its advantage. Mere recitation of a newly discovered property or function what is inherently possessed by the things or steps in the prior art does not cause a claim drawn to those things to distinguish over the prior art. ***Leinoff v. Louis Milona & Sons, Inc.*** 220 USPQ 845 (CAFC 1984).

With regard to the limitations of instant claims 3 –5 and 12-17, Sun discloses that the fine inorganic powder may comprise **any of the clays** (i.e., hydrated **aluminum silicates**, generally of the formula $H_2Al_2Si_2O_8 \bullet H_2O$). Suitable clays are **kaolin clays** (col. 7, lines 10-13). The inorganic powder is preferably mixed with the SAP particles in an amount sufficient to achieve anti-caking characteristics. Typically, this is an amount of between **about 0.2% to about 10%**, more preferably about 0.5% to about 7%, and even more preferably about 0.9% to about 5.5% (i.e., between about 0.9 to about 5.5 parts of inorganic powder per 100 parts) by weight of the SAP particles.

With regard to the limitations of instant claims 7-10, Sun disclose that additional useful monomers for making the SAPs include from above 0 up to about 40% by weight of acrylamide, methacrylamide, maleic acid, maleic anhydride, esters (such as hydroxyethyl acrylate, hydroxypropyl acrylate, hydroxypropyl methacrylate, and dimethyl-aminoalkyl-methacrylate), dimethyl-aminopropyl acrylamide, and acrylamidopropyl trimethylammonium chloride. Percentages below about 40% of these monomers are desirable as percentages above 40% typically will have a detrimental effect and deteriorate the swell capacity of the resultant SAP (col. 5, lines 19-32).

Furthermore, depending on the desired end use, the SAP may have a water-soluble polymeric component. The content may range from above 0 up to about 30% by weight of a component that includes, but is not limited to, partially or complete saponified polyvinyl alcohol, polyvinyl pyrrolidone, starch, starch derivatives, polyglycols, polyacrylic acids, and combinations thereof. The molecular weight of the component is not critical, provided that it is water-soluble. Preferred water-soluble

polymeric components are starch, polyvinyl alcohol, and mixtures thereof. Preferably, the content of the water-soluble polymeric component in the SAP ranges from about 1 to about 5% by weight, especially if starch and/or polyvinyl alcohol are present as the water-soluble polymeric component. Also, the water-soluble polymeric component may be present as a graft polymer having the acid-groups-containing polymer (col. 5 line 55 through col. 6, line 3).

With regard to the limitations of instant claim 11, Sun discloses that the acid groups are typically **neutralized to at least about 25-mol** %. Preferably, the extent of neutralization is to at least about 50-mol %. More particularly, the preferred SAP has been formed from X-linked acrylic acid or methacrylic acid, which has been neutralized to an extent of **about 50 to about 80-mol %**. Suitable neutralizing agents are hydroxides and/or carbonates of alkaline earth metals and/or alkali metals, for instance, NaOH (col. 5, lines 3-18).

Therefore all the limitations of instants claims 1-5 and 7-17 are met by Sun.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable as obvious over Sun et al. as applied to claims 1-5 and 7-17 above.

With regard to the limitation of instant claim 6, Sun does not disclose that less than 5% by weight of the particles have a diameter of 200 μM or less.

It is noted that the amount of the diameter of the particles is a result effective variable, and therefore, it is within the skill of those skilled in the art to find the optimum value of a result effective variable, as per ***In re Boesch*** 205 USPQ 215 (CCPA 1980). See also ***In re Peterson***, 315 F.3d at 1330, 65 USPQ2d at 1382: "The normal desire of

scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."

6. Claim 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable as obvious over Sun et al. as applied to claims 1-5 and 7-17 above and further in view of Beerse et al. (US 2002/0006886).

Sun does not disclose the particles wherein the organophilic clay contains long chain alkyl radicals having 14 to 22 carbon atoms.

Beerse discloses that the term 'tallow' refers to an alkyl group derived from tallow fatty acids (usually hydrogenated tallow fatty acids), which generally have mixtures of alkyl chains in the C_{12} to C_{14} range. Examples of quaternary ammonium salts derived from these tallow sources include ditallow dimethyl ammonium chloride, ditallow dimethyl ammonium methyl sulfate, di(hydrogenated tallow) dimethyl ammonium chloride, di(hydrogenated tallow) dimethyl ammonium acetate, ditallow dipropyl ammonium phosphate, ditallow dimethyl ammonium nitrate, tallow ammonium chloride, etc. (page 21, [0228]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate organophilic clay selected from tallow derivatives as taught by Breese in Sun's superabsorbent polymers in order to obtain a superabsorbent polymers with additional linkages, or hydroxyl, or amino group substituents (e.g., the alkyl groups can contain polyethylene glycol and polypropylene glycol moieties) (page 21, [0224]).

Thus, the combination of Sun and Breese renders the instant claims 18 and 19 *prima facie* obvious absent evidence of unexpected results commensurate in scope to the claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Bernshteyn

Michael Bernshteyn
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MB
12/08/2005

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